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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,933	08/28/2003	Seo-Hyun Cho	1349.1280	6101

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER
VO, ANH T N

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 08/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/649,933	CHO ET AL.	
	Examiner	Art Unit	
	Anh T.N. Vo	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL REJECTION

Claims Rejections

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-37 are rejected under 35 USC 103 (a) as being unpatentable over Kim et al. (US Pat. 6,623,092) in view of Tsukuda (US Pat. 6,234,615).

Kim et al. disclose in Figures 2-3 an ink cartridge comprising:

- at least one first chamber (160) storing an ink;
- at least one second chamber (120) having an air inflow hole (124) formed at an upper portion thereof to be exposed to an ambient air and an ink supply portion (132) formed at a lower portion thereof and having an ink supply port supplying an ink, the second chamber containing with a negative pressure generating medium (122) storing the ink;
- an intermediate partition (110) having a connecting hole (112) defined in a lower portion thereof, connecting the first and the second chambers (160, 120) to each other, the intermediate partition (110) dividing the first and the second chambers (160, 120);
- wherein the third face comprises an inclined surface (an unmarked inclined surface is at bottom wall of an chamber 120) extending toward the ink supply portion (132) from a position, which is separated by a predetermined distance from a third vertical plane vertically extending

from a second wall of the intermediate partition facing the second chamber by a predetermined distance, the inclined surface being inclined at a predetermined obtuse angle with respect to a horizontal surface;

- wherein a lower surface of the negative pressure generating medium (122) to expand in the second chamber (120) adjacent to the intermediate partition (110) is inclined at an angle corresponding to the angle of the inclined surface before the negative pressure generating medium expands in the second chamber, thereby preventing the negative pressure generating medium from being compressed and expanding in a substantially triangular space defined by an extended plane from the inclined surface of the third face, a non-inclined surface of the third face, and the third vertical plane as the negative pressure generating medium expands in the second chamber;

- wherein the obtuse angle of the inclined surface is measured from a non-inclined portion of the third face;

- wherein the third face (an unmarked bottom wall of a chamber 160) comprises a horizontal surface portion parallel to the horizontal plane.

- wherein the ink cartridge comprises magenta, cyan, and yellow ink chambers (Fig. 2);

- wherein the medium chamber (120) contains a negative pressure generating medium (122) including a porous material, wherein the porous material is foam to store ink;

- a filter (130) on a stand pipe between the medium (122) and the ink supply port (132) to guide a flow of the ink;

- wherein a portion of the base of the ink cartridge (100) in the medium chamber side (120) is inclined at an angle between 90 and 180 degrees from a non-inclined portion of the base toward the ink supply portion (132) (Fig. 3); and

- wherein the inclined portion prevents air bubbles from horizontally moving toward the ink supply port (132); and

- wherein a lower surface of the medium (122) has an inclined angle substantially corresponding to the angle of the inclined surface.

However, Kim et al. do not disclose that a first volume is larger than a second volume;

wherein the first volume being defined by a first face forming an ink contact surface of the negative pressure generating medium adjacent the connection hole, a second face forming a bottom surface of the intermediate partition in the connecting hole, a third face forming a bottom of the ink cartridge, and a first vertical plane extending vertically from a center plane of the intermediate partition and the second volume being defined by the first vertical plane, the second face, the third face, and a second vertical plane extending vertically from a wall of the intermediate partition facing the first chamber as recited in claims 1 and 15; the corner of the cut out of the medium is inclined or stepped as recited in claims 27-28, 34-35 and 37, and the inclined position begins at a position within the ink chamber side as recited in claims 29-31. For example, the medium (122) of Kim et al does not include a cut-out corner at the connecting hole (112) so that the medium (122) does not create a first volume and a second volume as claimed, and the inclined potion of the bottom wall begins at a position inside the second ink chamber (120) instead of being inside of the first ink chamber (160).

Tsukuda suggests in Figures 1and 3A-3C an ink tank (8B) comprising a partitioned wall (30W), a first chamber (30B), a second chamber (30A) and a porous member (32) having a corner in a rounded shape at a connecting hole (30T). The rounded corner of the porous member creates a first volume and a second volume as claimed for providing a stable negative pressure immediately after a replenishing operation, see lines 40-45, column 9.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to make the corner of porous member of Kim et al rounded as suggested by Tsukuda for the purpose of providing a stable negative pressure immediately after a replenishing operation. Noted that the modified porous member with a rounded corner of Kim et al in view of Tsukuda would create the claimed first volume and the claimed second volume.

Although Kim et al in view of Tsukuda does not specify that the cut-out medium is inclined or stepped, and the declined wall of the bottom wall includes a inclined position which begins inside the first chamber (160); however, a skilled artisan realizes that the cut out corner can be cut in different shapes to enhance the negative pressure and the transfer of ink between

the chambers, and the inclined wall can be rearranged as claimed for accommodating with the size and shape of a cartridge holder of a predetermined printing device in which the modified ink cartridge of Kim et al is to be used. Thus, selecting an optimum shape of the cut-out corner or rearranging the declined wall as claimed is considered to be a matter of a mechanical design expedient for an engineer. In re Daily, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See MPEP 2144.04. Lacking of showing any criticality, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the shapes for the cut-out corner of the modified premium of Kim et al as claimed for the purpose of enhancing the negative pressure and the transfer of ink between the chambers, and rearranging the declined wall of the ink cartridge for the purpose of accommodating with the size and shape of a predetermined holder..

Response to Applicant's Arguments

The applicant argues that Kim does not disclose the first volume as recited in claim 1 because the sponge 122 does not contact the bottom of the cartridge therefore the boundaries of the first volume as recited in claim 1 are not disclosed. The argument is not persuasive because there is nothing stated in claim 1 anything about the sponge contacting the bottom of the cartridge.

The applicant agues that there is no motivation to combine the Kim reference with the Tsukuda reference. The argument is not persuasive because the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, although Kim does not disclose that a corner of porous member (122) is round at the hole (112) to provide a the first volume and the second volume as recited in claim 1; however, this limitation is suggested in Figures 1 and 3A-3C of Tsukuda in which the porous member (32) having a corner in a rounded shape at a connecting hole (30T) for providing a stable negative pressure immediately after a replenishing operation, see lines 40-45, column 9. One skilled artisan would be motivated to

apply such rounded corner in the cartridge of Kim for the purpose of providing a stable negative pressure.

The applicant argues that neither Kim nor Tsukuda discloses a first volume of which one boundary is "an exposed portion of a surface of the petition on the medium chamber side". The argument is not persuasive because the modified sponge of Kim in view of Tsukuda would form with the partitioned wall and the bottom of the cartridge a first volume and a second volume as recited in claim 15.

The applicant argues that the reference does disclose "a surface of the negative pressure generating medium facing the connecting hole is provided at an inclined angle from the intermediate partition to a bottom surface" and selecting the shape of the sponge corner is not a mechanical design expedient (common knowledge). The argument is not persuasive because the round corner of the sponge (32) of Tsukuda provides an inclined plane which is formed with the partitioned wall (30W) an inclined angle. Since Tsukuda suggest the round shape for the sponge to provide a stable negative pressure, selecting the corner shape as claimed for optimizing the negative pressure would have been obvious and is considered to be a matter of a mechanical design for a person having skill in the art.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M.to 7:00 P.M..

The fax number of this Group 2861 is (571) 273-8300.

ANH T.N. VO
PRIMARY EXAMINER
August 15, 2006